

WHAT IS CLAIMED IS:

1. A semiconductor laser drive circuit for a semiconductor laser element including a semiconductor laser diode and a monitor photodiode both having respective cathodes connected in common, wherein the semiconductor laser diode has an anode connected to a power supply line side and the monitor photodiode has an anode connected to a ground line side via a voltage generating unit generating voltage according to an amount of current flowing into the monitor photodiode, the semiconductor laser drive circuit comprising:

a current control element adjusting an amount of current supplied to the semiconductor laser diode;

a feedback control unit receiving a voltage generated by the voltage generating element to supply a control signal to a control terminal of the current control element based upon the relationship of a reference voltage level to the voltage generated, thereby controlling in a feedback manner the output laser beam of the semiconductor laser diode so as to maintain the output laser beam at a predetermined level;; and

a biasing element provided between the common cathode connection of the semiconductor laser diode and the monitor photodiode, and the ground line, the biasing element applying a reverse bias voltage to the monitor photodiode.

2. A semiconductor laser drive circuit according to claim 1, wherein the current control circuit is provided between the power supply line and the anode of the semiconductor laser diode.

3. A semiconductor laser drive circuit according to claim 1,

wherein the current control circuit is provided between the cathode connection of the semiconductor laser diode and the monitor photodiode, and the ground line

4. A semiconductor laser drive circuit according to claim 3, wherein the current control element is connected in series to the biasing element between the cathode connection of the semiconductor laser diode and the monitor photodiode, and the biasing element.

5. A semiconductor laser drive circuit according to claim 2, wherein the reference voltage is a variable resistor allowing for variable adjustment of the semiconductor laser diode.

6. A semiconductor laser drive circuit according to claim 4, wherein the reference voltage is a variable resistor allowing for variable adjustment of the semiconductor laser diode.

7. A semiconductor laser drive circuit according to claim 2, wherein the biasing element is a variable resistor allowing for variable adjustment of the speed of the feedback control loop.

8. A semiconductor laser drive circuit according to claim 4, wherein the biasing element is a variable resistor allowing for variable adjustment of the speed of the feedback control loop.

9. A semiconductor laser drive circuit according to claim 2, wherein the current control element is a bi-polar transistor.

10. A semiconductor laser drive circuit according to claim 2, wherein the current control element is a field-effect transistor.

11. A photoelectric sensor comprising a light emitting unit emitting light directed to a predetermined detection region and a light receiving unit receiving light from the detection region, thereby performing a detecting operation according to a level of the light

received by the light receiving unit, the light emitting unit including a semiconductor laser drive circuit for a semiconductor laser element including a semiconductor laser drive diode and a monitor photodiode both having respective cathodes connected in common, wherein the semiconductor laser diode has an anode connected to a power supply line side and the monitor photodiode has an anode connected to a ground line side via a voltage generating unit generating voltage according to an amount of current flowing into the monitor photodiode, the semiconductor laser drive circuit comprising:

a current control element adjusting an amount of current supplied to the semiconductor laser diode;

a feedback control unit receiving a voltage generated by the voltage generating element to supply a control signal to a control terminal of the current control element based upon the relationship of a reference voltage level to the voltage generated, thereby controlling in a feedback manner the output laser beam of the semiconductor laser diode so as to maintain the output laser beam at a predetermined level; and

a biasing element provided between the common cathode connection of the semiconductor laser diode and the monitor photodiode, and the ground line, the biasing element applying a reverse bias voltage to the monitor photodiode.

12. A photoelectric sensor according to claim 11, wherein the current control circuit is provided between the power supply line and the anode of the semiconductor laser diode.

13. A photoelectric sensor according to claim 11, wherein the current control circuit is provided between the cathode connection

of the semiconductor laser diode and the monitor photodiode, and the ground line.

14. A photoelectric sensor according to claim 13, wherein the current control element is connected in series to the biasing element between the cathode connection of the semiconductor laser diode and the monitor photodiode, and the biasing element.

15. A photoelectric sensor according to claim 12, wherein the reference voltage is a variable resistor allowing for adjustment to the maintenance level of the output of the semiconductor laser diode.

16. A photoelectric sensor according to claim 14, wherein the reference voltage is a variable resistor allowing for adjustment to the maintenance level of the output of the semiconductor laser diode.

17. A photoelectric sensor according to claim 12, wherein the biasing element is a variable resistor allowing for modification of the speed of the feedback control loop.

18. A photoelectric sensor according to claim 14, wherein the biasing element is a variable resistor allowing for modification of the speed of the feedback control loop.

19. A photoelectric sensor according to claim 14, wherein the current control element is a bi-polar transistor.

20. A photoelectric sensor according to claim 14, wherein the current control element is a field-effect transistor.